The Size and Sources of Municipal Incumbency Advantage in Canada

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Abstract

This article uses a new dataset of nearly 2,000 municipal elections from 1874 to 2018 to estimate the size of municipal incumbency advantage in Canada for the first time. Incumbency increases the probability that a candidate will win the next election by more than 30 percentage points and accounts for well over half of overall incumbent success. Incumbency advantage varies modestly by institutional context but varies substantially over time, with a distinct decrease during a period of partisan elections in the mid-twentieth century. These findings represent one of the first estimates of municipal incumbency advantage in an advanced democracy outside the United States and provide a new approach to estimating and comparing incumbency advantage in multi-member and single-member districts. The findings suggest important similarities between Canadian and American municipal elections, demonstrate that incumbency advantage has varied significantly at the municipal level over time, and illustrate the value of historical election data for scholars of urban electoral politics.

Keywords

incumbency, municipal elections, Canada, urban politics

Incumbent candidates who seek re-election in Canadian municipalities almost always win. This is especially true in big cities: In Toronto, incumbent candidates between 2003 and 2014 were re-elected 93% of the time

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(Moore, McGregor, and Stephenson 2017); in Alberta's two biggest cities, Calgary and Edmonton, incumbent re-election rates since the 1990s have consistently surpassed 90% (Lucas and Sayers 2018), and earlier calculations for big cities across the Province of Ontario found success rates in the high 80% and low 90% range (Kushner and Siegel 1997). From a comparative perspective, incumbent success rates in Canadian cities are "stunningly high" (Dassonneville 2018, p. 256).

These stratospheric re-election rates are often interpreted as a sign of serious unfairness in Canadian municipal elections. Reforms ranging from stricter campaign finance rules (Dippel 2018) to term limits (Godbout 2018) to political parties (McQuigge 2018) have been suggested as possible solutions to the unfairness of incumbent electoral success. The problem with these suggestions, as a well-established literature in American politics has argued for decades, is that incumbent *success* does not necessarily require incumbency *advantage*; we cannot know from incumbent re-election rates alone that incumbency *itself* increases a candidate's probability of re-election. Other factors, from a candidate's personal qualities to the partisan composition of an electoral district, may produce consistent incumbent re-election even in the absence of incumbency advantage (Gelman and King 1990; Levitt and Wolfram 1997). Thus to understand how incumbency affects municipal election outcomes, we need to separate incumbency advantage from incumbent success (Trounstine 2011).

Building on a large body of research on incumbency advantage, this article uses a regression discontinuity (RD) design to estimate the size of incumbency advantage in four Canadian cities: Calgary, Edmonton, Vancouver, and Winnipeg. Using a new dataset—one of the largest historical datasets of mayoral and council election results yet constructed—I find that incumbency advantage is very large and likely accounts for well over half of the overall incumbent success. I find that incumbency causes an increase in the probability that a candidate will run in and win the next election by more than 30 percentage points in the dataset as a whole, and by more than 40 percentage points in the contemporary era. This incumbency advantage appears to be larger in ward elections than at-large elections and larger in mayoral races than in council races, but these institutional and contextual differences, while suggestive, are statistically weak. Variation over time, on the other hand, is more substantial and robust, with a distinct decrease in incumbency advantage during the 1920 to 1950 period—a period, I will show below, of explicit partisan politics in the four cities.

This article makes three main contributions to our understanding of urban politics and elections. First, and most obviously, I provide the first estimate of municipal incumbency advantage in Canada, a context that is both distinct

from but usefully comparable to cities in the United States. Second, as I explain below, I develop a novel strategy to estimate incumbency advantage in single-member, multi-member, and at-large elections, enabling us to undertake pooled estimates across district types and to understand how incumbency advantage varies across district magnitudes; this is a vital analytical task that has thus far been avoided or overlooked despite important wider debates about the effects of institutional structures on municipal politics (Trounstine 2010; Trounstine and Valdini 2008; Warshaw 2019). Finally, and perhaps most importantly, I carefully analyze variation in the historical development of municipal incumbency advantage for the first time, and in doing so, I demonstrate that incumbency advantage is not an inevitable product of the institutional or political-economic context of municipal elections. This has important implications not only for our theories of incumbent success, but also for our understanding of the possibilities and limits of democratic competition and political accountability at the local level.

Sources of Incumbency Advantage

Two distinctions are helpful when thinking about the electoral success of incumbents. First, we can distinguish between incumbent *success*, the overall difference in the probability that an incumbent will be elected relative to a non-incumbent, and incumbency *advantage*, the increase in the probability of re-election caused by incumbent status itself (Fowler 2016; Gelman and King 1990; Hirano and Snyder 2009: 292n2; Levitt and Wolfram 1997). Second, we can distinguish between components of incumbent success or advantage that operate primarily at the level of *candidate* decision making and those that operate primarily at the level of *voter* decision making (Fowler 2018). Table 1 seeks to organize the recent literature on incumbent success with these two distinctions in mind. While my main empirical focus in this article will be to distinguish incumbent success from incumbency advantage in Canadian cities, and then to map variation in incumbency advantage across institutional and electoral contexts, thinking about the more specific components of both incumbent success and incumbency advantage is useful for clarifying our expectations about how incumbency advantage might vary across distinct municipal institutional and temporal contexts.

Beginning with the first distinction, most work on incumbent success has recognized that incumbent status is just one aspect of incumbent candidates' electoral success. Other factors—such as a candidate's past experience (Cox and Morgenstern 1993; King 1991; Krebs 1998) or attractive qualities such as ethnicity, gender, and "hometown" background (Ansolabehere et al. 2006)—are likely to contribute to a candidate's initial and subsequent electoral success.

Table 1. Sources and Components of Incumbent Success.

	Fixed Characteristics	Incumbency Advantage
Voter-level components	• Past experience: candidate's past experience, including past officeholding (Cox and Morgenstern 1993; Erikson 1971; Fowler 2016; Krebs 1998; Levitt and Wolfram 1997; Trounstine 2012)	• Personal vote: personal connection between candidate and voters due to franking, constituency service, attendance at community events, and so on (Ansolabehere, Snyder, and Stewart 2000; Desposato and Petrocik 2003; King 1991)
	• Ideological or partisan match: alignment between candidate partisanship/ideology and that of electoral district (Fowler 2016; Gelman and King 1990; Gelman and Huang 2008) • Candidate characteristics: candidate ethnicity, gender, and so on (Ansolabehere et al. 2006)	• Information: incumbency may serve as a valuable cue (of candidate quality, for instance) for voters (Ansolabehere, Snyder, and Stewart 2000; Fowler 2018; Moore, McGregor, and Stephenson 2017)
Candidate-level components	• Scare-off: candidates who are "high quality" on one of the above dimensions (e.g., experience) may choose not to run if the race is "unwinnable" on other dimensions (e.g., district partisanship) (Carson et al. 2007; Erikson and Titiunik 2015).	• Scare-off: high-quality challengers may choose not to run against incumbents (Cox and Morgenstern 1993; Erikson and Titiunik 2015; Hall and Snyder 2015; Hirano and Snyder 2009; Levitt and Wolfram 1997)

Partisan and/or ideological match with the electoral district also matters; we are typically unsurprised to find that a conservative candidate elected in an overwhelmingly conservative district continues to win subsequent elections (Gelman and Huang 2008; Gelman and King 1990). These characteristics are "fixed" to a candidate in the sense that incumbent status does not change a candidate's prior experience, basic personal characteristics, or the ideological and partisan character of their district. Within these fixed characteristics, voter-level factors are presumed to operate by means of well-known processes of

affinity, familiarity, and informational cues. Candidate-level factors, which change the probability that a candidate will face at least one high-quality competitor, operate primarily by "scaring off" high quality challengers who may choose not to run or to seek a different office. These advantages are outlined in the left-hand column of the table.

Aside from the fixed characteristics that appeal to particular voters in particular political-geographic contexts, scholars have also noted that incumbency itself—the very fact of being the candidate in a given race who is seeking re-election—may increase a candidate's probability of election. This incumbency advantage, the right-hand column of the table, has also been divided into several conceptually distinct sub-components. The first is the "personal vote," in which incumbent candidates benefit from the personal connections they make with voters as a result of their elected status: constituency service, attendance at community events, regular presence in local media, and so on (Ansolabehere, Snyder, and Stewart 2000; Desposato and Petrocik 2003; King 1991). Incumbency may also serve as an informational cue if voters assume that incumbents—who were, after all, successfully elected in the past—are probably high-quality candidates (Eggers and Spirling 2017; Fowler 2018). And at the candidate level, mere awareness of incumbent success rates may discourage high-quality challengers from entering incumbent races, creating a "scare-off" effect. What is crucial about these factors, in comparison to those in the left-hand column, is that they accrue to elected candidates simply by virtue of having been elected. While the size of the various effects may vary (Desposato and Petrocik 2003), these advantages are available to candidates only as a result of having gained incumbent status.

Thinking more carefully about the right-hand column of Table 1, we can also consider the factors that might affect the relative weight or force of each component in context (Cox and Morgenstern 1993; Fowler 2018). In a context of strong individual-level party identification, for instance, personal connections to the incumbent candidate (the "personal vote") may not be sufficient to persuade voters to support an incumbent of the opposite partisan stripe. When party identification is very weak, on the other hand, or when voters see little difference between candidates of different parties, we would expect the personal vote to have a larger effect on voter decision-making. Andrew C. Eggers and Arthur Spirling (2017) have shown this to be the case in the United Kingdom: Incumbency advantage is larger when voters are more indifferent between the leading parties in their constituency.

Similarly, the informational cue might vary by context; most obviously, the cue is only effective if voters know *which* candidate is the incumbent, and this could vary as a result of redistricting or ballot information (Hood and McKee 2010). If other information is available to voters, such as candidate

partisanship, those other informational cues could also dampen the effect of the incumbency cue (Ansolabehere et al. 2006). And when thinking about candidate entry, we might expect that scare-off will be less substantial in some elections, such as multi-member elections, if institutional environments make it less likely that *n* incumbents are running to fill *n* available seats (Hirano and Snyder 2009). Each of these possibilities, as we will see, has potential implications for incumbency advantage in the municipal context.

It is important to notice the particularly important role of parties and partisanship in shaping each of the components of incumbency advantage that we have just discussed. In the presence of strong party competition and individual-level party identification, the probability that a partisan voter will support an incumbent candidate of a different party—that is, the potential strength of the *personal vote*—is considerably lower than if parties are nonexistent or voters see fewer differences between them (Eggers and Spirling 2017). In the presence of party affiliations and partisan electoral contestation, the role of incumbency as an *informational cue* is likely to be weakened as a result of the competing party affiliation cue (Fowler 2018). And the presence of political parties with an incentive to run a full slate of high-quality candidates makes it less likely that an incumbent candidate will be able to *scare off* all high-quality challengers (Carson, Engstrom, and Roberts 2007). Thus, we would expect to see incumbency advantage decline during periods of stronger party competition or party identification in comparison to fully candidate-centered periods when parties are absent from electoral contests.

Municipal Incumbency Advantage

Studies of *municipal* incumbency advantage are few in number but generally high quality. These studies began with Jessica Trounstine's (2011) analysis of incumbency effects in Austin, Dallas, San Antonio, and San Jose, as well as a brief analysis in Ferreira and Gyourko's (2009) study of partisanship and policy-making in nearly 2,000 American mayoral elections. More recently, de Benedictis-Kessner (2017) has compared incumbency advantage in on-cycle and off-cycle elections using nearly 10,000 mayoral contests, and Christopher Warshaw (2019) has provided a brief comparison of incumbency advantage across levels of government. Despite different data sources and some variation in estimation procedures, all of these analyses have found that incumbent status increases the probability of re-election by about 32 to 37 percentage points.[1]

Combining these literatures—the larger literature, with its theories of the sources and components of incumbent success, along with the smaller and more recent literature on municipal incumbency advantage—produces a few

clear expectations for our analysis of municipal incumbency advantage in Canada. Given consistent findings in the American municipal context, I expect, first of all, that incumbency advantage *is* an important element of incumbent success in Canada. Since the basic shape of municipal politics and elections in Canada is broadly similar to many non-partisan, weak-mayor elections in the United States, I expect to find similarly high rates of incumbency advantage.

I further expect, following the work cited above, that incumbency advantage will be lower in partisan than in non-partisan municipal elections. The data that I will analyze below offer a particularly useful opportunity to assess this expectation, since each of the four cities has passed through periods of both non-partisan and partisan competition—where "partisan" is understood to mean elections in which candidates are publicly identified as members of particular political teams and explicitly self-identify with those teams (e.g., in their newspaper advertising) and "non-partisan" is defined as fully candidate-centered elections in which candidates run only on their own name and do not align into slates with other candidates. For all of the reasons identified above—the implications of party contestation on the personal vote, informational cues, and scare-off—we would expect to see incumbency advantage decline when municipal elections in our case cities are partisan rather than non-partisan.

The effects of municipal *institutional* variation on incumbency advantage are less well theorized, largely because multi-member elections have not been widely studied in the incumbency advantage literature. However, past work in adjacent areas of research provides some useful guidance. In Canada and the United States, councilors in ward systems have been shown to pursue a more geographically targeted representational focus than councilors in at-large systems (Koop and Kraemer 2016; Welch and Bledsoe 1990); this representational focus is likely to lead to a stronger personal vote for ward-based representatives than for at-large representatives, and thus to lower incumbency advantage estimates in at-large systems. In addition, whereas single-member ward elections are always *either* open or incumbent races, at-large elections are almost always a mix of the two, as incumbent retirements create some new openings on city council. This may reduce scare-off in at-large elections (Hirano and Snyder 2009). Thus, we should expect, once again, that incumbency advantage will be smaller in at-large than in ward elections.

Many of the same considerations apply to the distinction between mayoral and council races. Extensive opportunities for incumbent mayors to cultivate non-ideological and non-partisan connections with voters through public events, funding announcements, and general media attention should allow for a more robust personal vote, and thus higher incumbency advantage, in mayoral races.

Scare-off effects are also likely to be more powerful at the mayoral level, as the resources necessary to mount a substantial challenge to an incumbent mayor combine with widespread knowledge of incumbent dominance to discourage serious challengers from entering a race. In the absence of some other motivation, such as partisanship, high-quality candidates are unlikely to risk the high-profile embarrassment of a significant loss in a city-wide mayoral race.[2]

Despite rich institutional and contextual variation in the elections data that I use in this article, aggregate election results alone will not allow us to distinguish precisely among the various components of incumbency advantage listed in Table 1. Having established the size and importance of the incumbency advantage in this article, additional research to explore these further distinctions—and discuss their distinct normative implications—is an obvious next step for a research agenda on municipal incumbency advantage.[3] However, as I have suggested above, working through these components here is useful for thinking about the contexts in which we might expect incumbency advantage to be higher or lower—and thus, at least indirectly, for thinking about the underlying components themselves. I thus test all of these expectations and discuss their implications for the underlying components of incumbency advantage in the analysis below.

Data and Methods

My analysis draws on a new dataset of election results in western Canada's four largest cities—Calgary, Edmonton, Vancouver, and Winnipeg—from the time of each city's incorporation up to the present.[4] The dataset includes complete candidate-level results for every general mayoral and council election in each city, which have been manually digitized from published sources, official archival records, and newspaper coverage. These sources served as the basis for most of the variables in the dataset, including candidate name, votes received, total votes cast, incumbency status, ward name, and so on. In most cases, however, candidates' party affiliation was not recorded in official sources, even when the elections themselves were described and understood by all involved to be contests between candidates from competing parties.[5] To collect candidate party affiliation, I thus collected party/slate affiliation data for each of the 5,022 candidates in the dataset using secondary sources and a systematic analysis of microfilm newspaper coverage of every election in the dataset for which party affiliation was not available from other sources. The dataset serves as a useful comparative supplement to impressive data collection efforts in the United States (de Benedictis-Kessner 2017; Ferreira and Gyourko 2009; Trounstine 2011) and is one of the largest datasets of historical mayoral and council election results yet compiled.[6]

This election results dataset is part of a larger research agenda on urban democratization and political development in Canada, and thus from the perspective of this article, it represents a convenience sample. However, the cities in the dataset are by no means obscure. These cities were, and remain, the four largest and most important urban regions in western Canada; today about one sixth of the Canadian population, and more than half of the western Canadian population, lives in their metropolitan areas. They have also consistently ranked among the largest cities in Canada as a whole.

The four cities included here are also valuable for the range of institutional variation that their histories contain. Through much of the twentieth century, western Canadian cities were leaders in experimentation with local electoral systems, electoral district types, franchise rules, and partisan versus non-partisan elections. This variation creates valuable opportunities for comparison that are often unavailable at other levels of government or in other cities elsewhere in Canada. However, to take advantage of (or, in some cases, adjust the analysis for) this variation in institutional context requires precise information about the structure of electoral institutions and the exact timing of institutional reform across the four cities; to this end, I have used provincial and municipal statutes and archival materials to build a supplementary dataset containing complete year-by-year data on the core institutional features of elections in each of the four cities, including district magnitude, district type, ballot counting procedure, and franchise rules.[7]

Estimation Strategy

Political scientists have used a wide range of approaches to estimate incumbency advantage in the past three decades. Recently, however, most have followed Lee (2008) and estimate district-level incumbency effects using two-party voteshare within a RD design. The logic of the RD design, and its benefits for causal identification, are by now well known: While general comparisons of the subsequent electoral success of winners and losers is confounded by a variety of factors (such as partisan match and candidate characteristics), RD allows us to identify the size of incumbency advantage, as distinct from overall incumbent success, by comparing the subsequent electoral performance of candidates or parties who narrowly win an election to candidates or parties who narrowly lose, on the assumption that other components of incumbent success are distributed quasi-randomly across winners and losers near the loss/victory threshold (Lee 2008). This approach has been well scrutinized (Caughey and Sekhon 2011; Eggers et al. 2015), and has been used to estimate incumbency advantage in American federal and state elections (Fowler 2016; Hall and Snyder 2015), Canadian and British federal

elections (Eggers and Spirling 2017; Kendall and Rekkas 2012), and municipal elections (de Benedictis-Kessner 2017; De Magalhaes 2015; Klašnja and Titiunik 2017; Trounstine 2011).

The distinctive character of the American electoral system—consistent two-party competition, nearly universal single-member districts, stable party systems across levels of government—has enabled American politics researchers to deploy Lee's "partisan incumbency advantage" approach (Erikson and Titiunik 2015; Lee 2008) across levels of government and long spans of time. In municipal elections, however, many of these features are absent or highly variable. Rather than consistent two-party competition, Canadian municipal elections feature a highly variable cast of parties along with long spells of non-partisan elections. Instead of consistent single-member districts, district magnitudes vary widely. And instead of a stable party system across levels of government, party systems vary widely; with only a few exceptions, major provincial or federal parties never contest municipal elections. This makes it impossible to apply Lee's party-based estimate of incumbency advantage to the Canadian municipal context.

To address these challenges, Leandro De Magalhaes (2015) has proposed a different approach, in which incumbency advantage is defined as the effect of incumbency on the probability that a candidate will run in and win the next election. This definition, which follows earlier work by Trounstine (2011), has several strengths. Most obviously, it enables research on incumbency advantage even in environments of significant partisan instability. It also creates a measure—the "unconditional incumbency advantage"—which can be compared across a variety of countries and contexts, enabling a genuinely comparative conversation on incumbency advantage. Finally, De Magalhaes's measure refocuses our attention on what is arguably a more intuitive conception of incumbency advantage itself: namely, how incumbent status changes a candidate's probability of successful re-election.

It is important to notice that De Magalhaes's proposed measure is an *unconditional* incumbency effect, meaning that it captures the effect of incumbency unconditional on running; the incumbency advantage, on this measure, is the effect of incumbency on the probability of running in and winning the next election. This measure has several advantages over a conditional measure (i.e., the probability of winning conditional on re-running). First, as I noted above, it creates a measure that is comparable across a variety of political and institutional contexts. It also captures the intuition that incumbency is likely to have effects not only on the probability of winning the next election but also on the probability of contesting the election in the first place—and this effect of incumbency on the decision to run is an important component of the incumbent's electoral advantage. Finally, and most

importantly, the unconditional measure avoids the potential bias created by focusing only on those who choose to run; if there are quality differences between narrow losers who chose to re-run and narrow winners who chose to re-run, a conditional estimate of incumbency advantage will be biased (Brambor and Ceneviva 2011; De Magalhaes 2015). We therefore focus here on the unconditional incumbency advantage.

Switching to the candidate-level estimate of incumbency advantage proposed by De Magalhaes solves most but not all of our estimation challenges. The most substantial problem that remains concerns voteshare. As noted above, the combination of single-member districts and two-party elections in the American context means that voteshare is an unproblematic measure; an increase in voteshare for one party (or candidate) means a decrease in voteshare for the other party (or candidate), and oddities in which *n* candidates from Party A do not face off against *n* candidates from Party B can generally be excluded from the analysis with little concern.[8] In Canadian cities, however, a highly variable number of candidates who are members of a highly variable number of parties face off against one another in districts of highly variable magnitude. This has clear mechanical effects on voteshare: In Vancouver's 10-member at-large elections, for instance, a voteshare of 0.05% is often sufficient for victory, whereas the average voteshare for winners in municipal single-member elections in recent years is regularly an order of magnitude larger.

This institutional variation in the meaning of voteshare for election outcomes creates a serious problem for the regression discontinuity design. This is one reason for the shift to a binary outcome variable—the unconditional incumbency advantage—described above. But even in this revised setup, voteshare cannot be totally avoided, because RD analyses of incumbency advantage use margin of loss or victory to define what counts as a "close" election; a key assumption of the RD approach is that assignment to narrow loser or narrow winner status is quasi-random, and we *define* narrow winner or loser status in terms of vote share. If we define closeness using single-member elections, we might choose elections won or lost by less than, say, 3% as "close" outcomes, but this would include nearly all election outcomes in 10-member at-large districts, where a 3% margin of victory would represent a crushing win. If we instead define closeness using 10-member at-large districts—using, say, 0.3% as our definition of a close election—we would exclude all but the most razor-thin outcomes in the single-member elections in our dataset. In past research, this problem has largely gone unaddressed or has simply been avoided by focusing exclusively on single-member mayoral races.[9]

This may seem a minor, even trivial problem. In municipal elections, however, multi-member contests are commonplace: In Canada, for instance, more than one fifth of the 1,198 municipal politicians in cities above 50,000

population are elected in at-large contests; if we include smaller cities, the proportion is even larger.[10] To properly understand municipal elections and compare electoral outcomes across at-large and ward systems, we simply cannot restrict our focus to single-member districts alone. Instead, to address the problem, it is useful to first notice that the issue would be easy to fix if voters in, say, Vancouver's 10-member at-large elections were *required* to cast all 10 of their available votes. If this were the case, we could simply multiply the resulting voteshares by 10 to create a comparable measure of the proportion of individual voters who cast a vote for each candidate. This would allow us to define close elections consistently across the different district types, thereby enabling comparative work on municipal electoral outcomes including incumbency advantage.

   In actual practice, nearly all *n*-magnitude elections in our dataset allow voters to cast up to *n* votes, which makes the calculation more complicated. Nevertheless, my solution draws on the logic of the simpler hypothetical example: I first create an estimate of rolloff in each election by dividing total council votes by total votes cast in the city's mayoral election, and then multiply council-level voteshares by the rolloff estimate to create the adjusted voteshare. For example, if 100,000 votes were cast in Vancouver's mayoral race and 800,000 votes cast in its council race, this means that each voter cast, on average, eight of their 10 available votes in the council race. I then use this rolloff estimate to calculate the adjusted voteshare measure for each council candidate; a voteshare of 0.01, for example, would be multiplied by eight to become 0.08. This measure is now comparable across elections and can be interpreted as the proportion of voters who cast one of their available votes for a particular candidate. The most important assumption of this approach is that the number of voters who cast a council vote but not a mayoral vote— what is sometimes called "reverse rolloff"—is negligible, an assumption that is clearly borne out in individual-level research on rolloff in Canadian local elections (McGregor 2018; McGregor and Lucas 2019).

   With this adjusted voteshare measure in hand, we can then pool elections of varying district magnitude and use the adjusted voteshare measure to select a bandwidth that captures a reasonable approximation of election "closeness" across the full dataset. It is important to recognize that I treat this adjusted voteshare measure very conservatively in this article, using it only to identify close elections across different district types; in future work, however, other municipal elections scholars may wish to build on this approach for other voteshare-based comparative work across ward and at-large systems. I describe the measure in more detail in the supplementary materials (SM5) and show that alternative approaches, including subsample analyses which compare adjusted to unadjusted margins as well as a meta-analysis-based coefficient averaging approach, yields nearly identical estimates to those reported here.
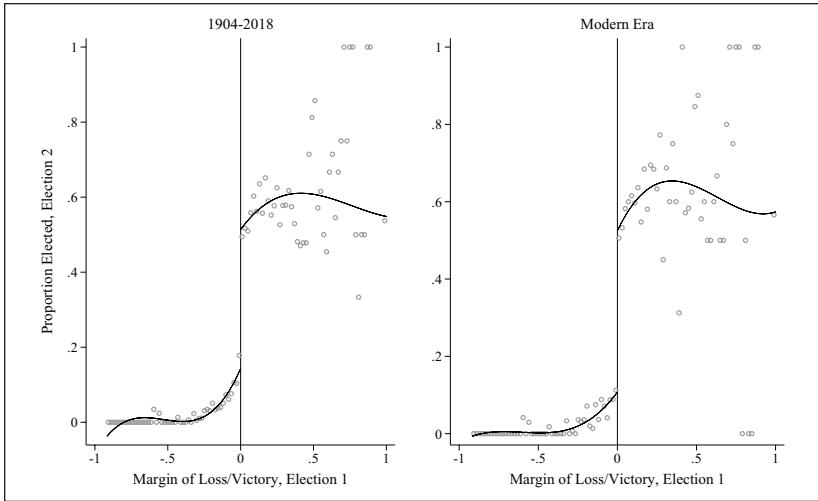
Figure 1. Margin of loss/victory and outcome at next election.
Note. Description: regression discontinuity plot of proportion of candidates in each margin of loss/victory bin (CCT optimal bin widths; widths approximately 0.2%) who go on to win the subsequent election, for full timespan and modern era.

Two final methodological issues are worth addressing before we move to results. First, the RD approach to incumbency advantage assumes an absence of sorting above and below the threshold and, relatedly, that incumbents near the threshold are unable to manipulate their precise vote share to their own benefit (Eggers et al. 2015; Lee 2008). To test the plausibility of these assumptions, I undertake a number of visual and statistical density and placebo tests and find no reason for concern (see SM2 and SM3). Second, throughout the analysis below, I use the "CCT" bandwidth selection procedures and bias-corrected robust confidence intervals developed by Calonico, Cattaneo, and Titiunik (2014) and Calonico et al. (2017). I show in the supplementary materials (SM6) that my results are robust to alternative specifications and bandwidths.

Results

I begin with the big picture. Figure 1 summarizes the data with a regression discontinuity plot for both the full dataset from 1904 to 2018[11] and the "modern era" in each city, the period from roughly 1970 to the present in which the institutional setup in each city has been essentially identical to what exists in that city today.[12] Each small circle in the figure marks the proportion of
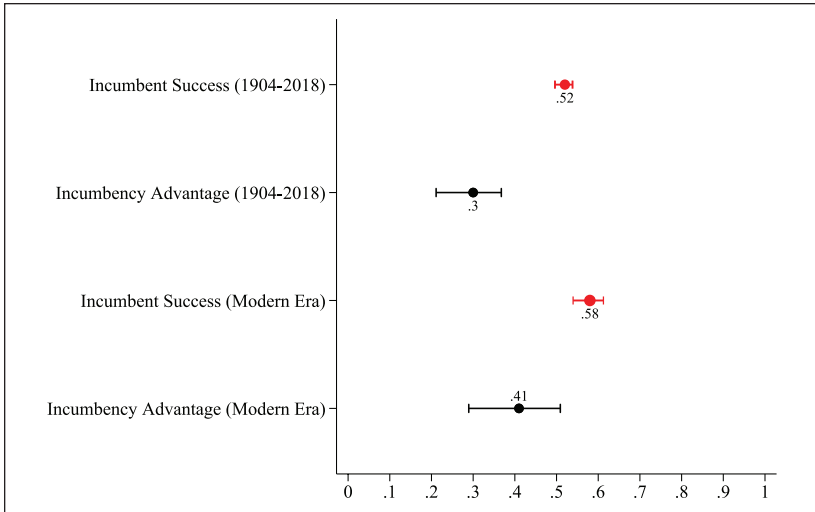
Figure 2. Estimates of incumbent success and advantage.
Note. Description: plot of incumbent success coefficients (in red or dark gray in grayscale versions) and incumbency advantage coefficients (in black) with 95% confidence intervals. Incumbent success estimates use ordinary least squares, $n = 8{,}561$ (full timespan) and 3,884 (modern era). Incumbency advantage estimates use CCT regression discontinuity estimator; effective number of observations $= 3{,}015$ (full timespan) and 1442 (modern era). Full table of results in SM5.

candidates within a particular "bin" of margin of loss/victory in Election 1 who subsequently win in Election 2; the bin size is about 2%, meaning that each circle records the proportion of candidates with a margin of victory between, say, 10% and 12% who go on to win the next election.[13] Unsurprisingly, very few of the candidates who do very poorly in Election 1 (those in the bins on the far left side of each x-axis) go on to win Election 2, and many of those who do very well in Election 1 (those in the bins on the far right side of each x-axis) tend to do well in Election 2. For our purposes, however, what is most interesting is to compare the bare losers just to the left of the zero line to the bare winners just to the right of the line; what we see in both cases is a sharp jump in the probability of election as we move across the line from bare losers to bare winners. This is strong visual evidence for a discontinuity of outcomes between narrow losers and narrow winners: It appears from the figures, in other words, that incumbency advantage is an important component of incumbent success in these cities.

How big is this advantage? Figure 2 provides the estimates, beginning with the overall increase in the probability of running in and winning the next election as a result of incumbent status (the red coefficients) and then the
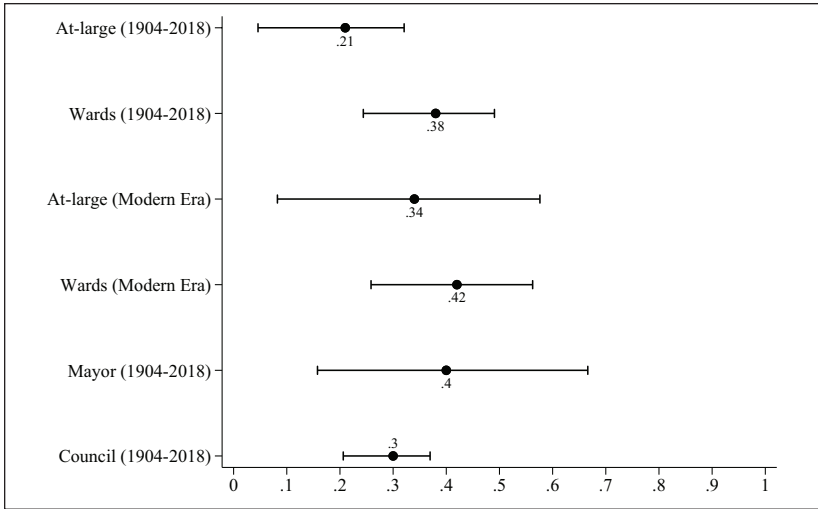
Figure 3. Incumbent advantage by institutional context.
Note. Description: plot of incumbency advantage estimates for ward/at-large and mayor/council subsamples, with 95% confidence intervals. All estimates use CCT estimator. Effective number of observations = 727 (at large, full timespan), 1,248 (wards, full timespan), 304 (at large, modern era), 836 (wards, modern era), 326 (mayor, full timespan), and 2,826 (council, full timespan). Full table of results in SM5.

estimates of unconditional incumbency advantage (the black coefficients).[14] The two coefficients at the top of the figure are from the full 1904 to 2018 period, and the two coefficients at the bottom are from the modern era. Across the full timespan, incumbency causes an increase of 30 percentage points in the probability of running in and winning the next election; in the modern period, the estimate is 41%. Compared to the coefficients in red, which reflect the *overall* increase in the probability that an incumbent candidate will run in and win the next election (52% for the full dataset and 58% for the modern era), these incumbency advantage estimates suggest that well over half of incumbent success, and perhaps more than two thirds in the modern era, is due to incumbency advantage (Fowler 2016). These estimates establish clearly that incumbent status has a substantial effect on election outcomes in Canadian cities.

Figure 3 summarizes variation in unconditional incumbency advantage by institution and office, comparing single-member wards to at-large elections and mayoral to council elections in both the full dataset and the modern era.[15] The differences are consistent with the expectations described above—the coefficients are lower in at-large than in ward elections and lower in council
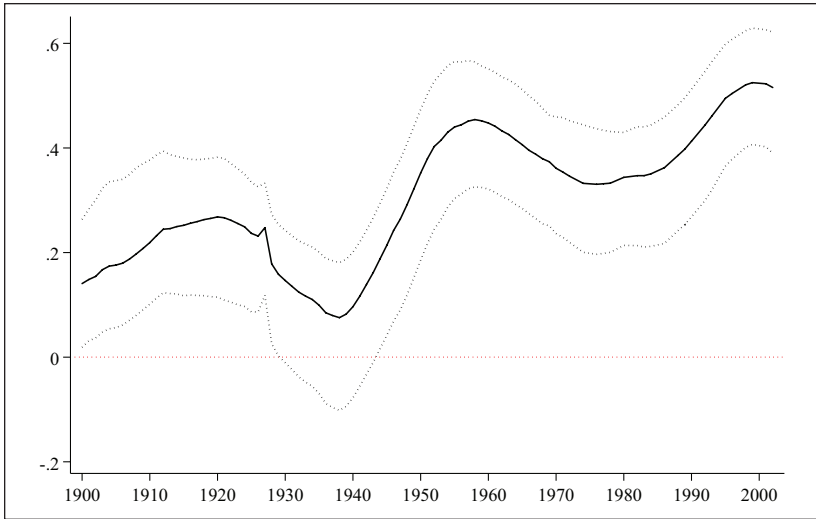
Figure 4. Incumbency advantage 1904-2003.
Note. Description: plot of incumbency advantage estimates for rolling thirty-year time windows in all four cities (pooled), with coefficients in solid line and 95% confidence intervals in dotted lines.

than in mayoral elections—but *z*-tests suggest that the differences are statistically significant only for the at-large/ward comparison for the full dataset, and even then only at a 90% confidence level ($p = .08$). Since these institutional comparisons are ultimately small-*n* comparisons—in the modern era, for instance, the institutional comparison is effectively a comparison of Vancouver with the three other cities—we must be very cautious in attributing the differences to institutional variation alone. Larger datasets of both council and mayoral races across a variety of institutional contexts, incorporating a larger number of Canadian (and perhaps American) cities, will be labor-intensive to construct but will enable more precise estimates of incumbency advantage within different municipal institutional environments. As things stand, these results provide little more than suggestive but weak evidence in support of our expectations concerning variation in incumbency advantage by institution and office.

Finally, Figure 4 surveys incumbency advantage in the four cities over time. The figure summarizes triangularly weighted rolling estimates of unconditional incumbency advantage for every 30-year window from 1904 to 2003 (the time period for which full 30-year windows are available); the solid line is the coefficient and the dotted lines are CCT robust 95% confidence

intervals.[16] The trend is striking: Healthy incumbency advantage in the early twentieth century which then dips downward, reaching a low point in the late 1930s before rising into the 40% range in the 1950s; then a less substantial dip and rise in the postwar period.

What could account for this temporal variation? For readers who are familiar with the histories of the case cities, one possibility is immediately obvious: political parties. Between the 1910s and 1950s, municipal elections in western Canadian cities were characterized by vigorous elections in which the overwhelming majority of elected mayors and councilors ran under the banner of an explicit and well-advertised political party or electoral slate (Lightbody 1978; Masson and LeSage 1994; Tennant 1980). The development of this partisan landscape followed the same basic trajectory in all four cities: First, a labor party decided to contest municipal elections; then a "non-partisan slating group" (NPSG) consisting of local elites emerged to oppose the labor party; a period of intense competition ensued in which the NPSG typically held a majority of seats but faced a significant labor minority; and finally, in the 1940s and 1950s, a combination of fragmentation among labor groups and strategic action by NPSGs led to the decline of significant electoral competition and a period of near-monopoly by NPSGs (Bright 1998; Epp-Koop 2015). The incumbency advantage line in the first half of Figure 4 appears to follow the opposite trajectory, with a decline during the period that partisan elections began followed by a rise during the period that partisan elections died off.

While the basic trajectory of the rise and fall of partisan elections was similar in each of the four cities, the timing and details varied in ways that help illustrate the relationship between partisan elections and incumbency advantage. Figure 5 summarizes these stories. In the left-hand column, I summarize vote share received by labor/left candidates, alphabet/right candidates (or NPSGs), urban reform candidates, other party candidates, and independents for each city from 1900 to present.[17] In the right-hand column, I estimate incumbency advantage in each city in rolling 30-year windows, this time with more generous 90% CCT-robust confidence intervals to account for the reduced sample sizes available for the city-level estimates.

The imprecision that is visible in each of the right-hand-column figures illustrates the risks involved in subsample estimates for binary outcome variables in small 30-year windows. Nevertheless, the trend lines are generally consistent with an interpretation of incumbency advantage as negatively related to partisan elections. In Calgary, a slow decline and then increase in incumbency advantage aligns with the long-term success of labor/left and third party candidates in contesting municipal elections. Much the same appears to be true in Edmonton and Winnipeg. In Vancouver, the rapid arrival
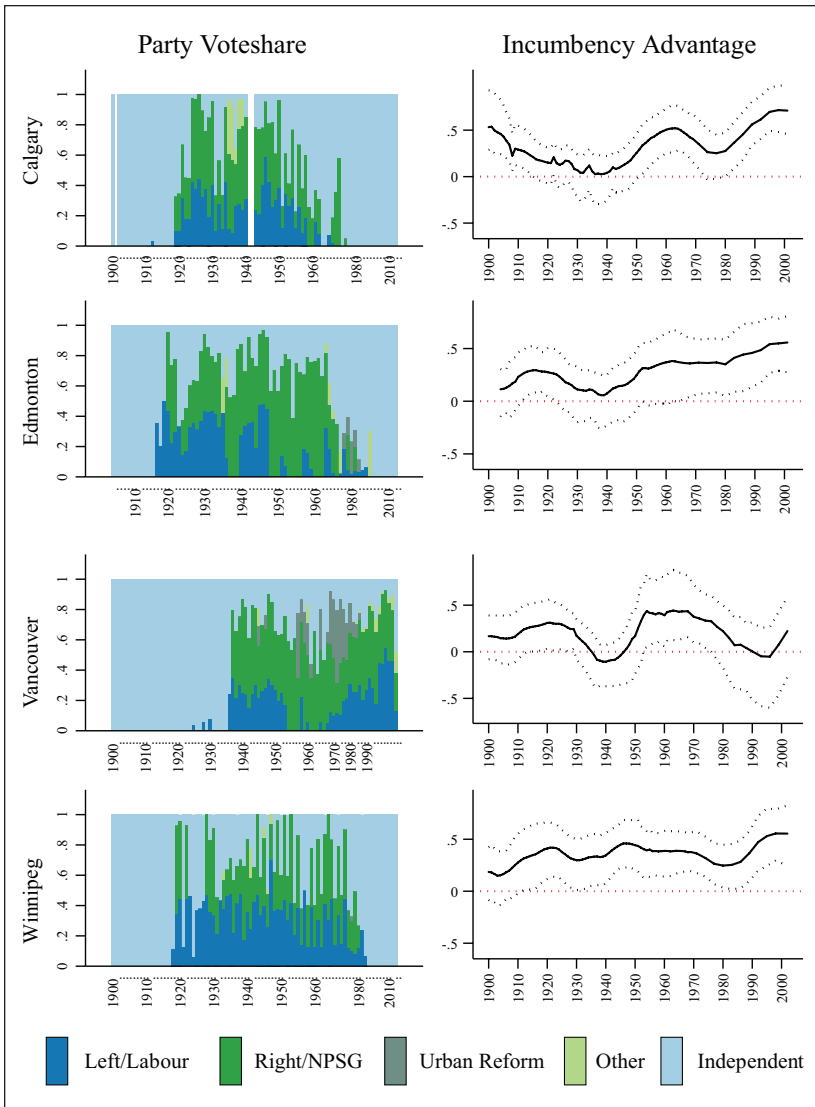
Figure 5. Party voteshare and incumbency advantage.
Note. Description: Plots of voteshare by party type (left-hand figures) and incumbency advantage estimates (right-hand figures) for each city. Dotted lines in incumbency advantage figures are 90% confidence intervals, reduced from 95% to reflect smaller sample size available for each city.
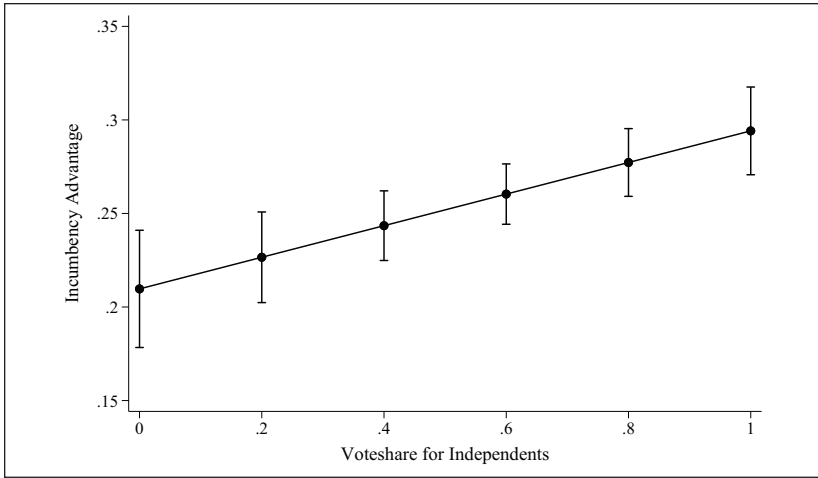
Figure 6. Expected values of incumbency advantage by independent voteshare.
Note. Description: expected value of incumbency advantage given voteshare received by independent candidates in an election. Incumbency advantage coefficients and standard errors drawn from city-by-city analyses in Figure 5 above. Variance-weighted least squares regression (weighted by standard error of regression discontinuity [RD] estimates) with city fixed effects. $n = 352$. Complete tables in SM9.

of party competition in 1936 to 1937 is mirrored in reverse in the incumbency advantage figure, as is the rapid collapse of party competition and a period of Non Partisan Association monopoly in the 1950s. The resurgence of party competition in the late 1960s and early 1970s, which persisted into the 1990s before beginning to fray somewhat in more recent elections, is also captured in reverse in the incumbency advantage plot. In all four plots, we see good evidence for the negative relationship between party competition and incumbency advantage: When two or more parties face off against one each other in a serious competition for vote share, the incumbency advantage line tends to trend downward.

Figure 6 provides a statistical confirmation of the visual trends in Figure 5. The figure reports expected values of incumbency advantage (drawn from the rolling city-by-city RD analyses visualized in Figure 5 above) for elections ranging from those in which independent candidates received very little voteshare to those in which independent candidates received all of the votes in the election.[18] As the proportion of votes received by independent candidates increases—that is, as the role of partisanship in the election declines—incumbency advantage increases.

What is it about partisan elections that might lead to this decrease in incumbency advantage? As we noted above, partisan elections might affect any of the mechanisms of incumbency advantage listed in Table 1: Sufficiently strong partisan divisions might swamp the advantages of the personal vote, partisan cues may overwhelm the incumbent-quality cue, and party commitments to running large slates of quality candidates may decrease candidate-level scare-off effects. In general, we cannot distinguish among these components of incumbency advantage using these data, except to note that a decline in "scare-off" was almost certainly an important component of the larger decline in incumbency advantage. Close investigation of re-running rates during the 1920 to 1950 period reveals that rerunning rates among narrow losers were at their highest in the partisan period, as committed partisan candidates ran again after narrow losses at rates much higher than other candidates in other time periods. Thus, while our results can tell us little about the role of the personal vote or incumbency cues in the 1920 to 1950 period, they *do* suggest that reduced candidate scare-off, borne of commitment on the part of partisan candidates to re-run even after narrow losses, helped to reduce incumbency advantage during the partisan period.

Discussion and Conclusion

In contemporary big-city elections in western Canada, incumbency causes an increase in the probability that a candidate will run in and win the subsequent election of more than 40 percentage points. This is an enormous effect, accounting for as much as two thirds of incumbent success in the modern period. It is also much larger than similar estimates in Canada at other levels of government.[19] Incumbency status alone puts Canadian municipal candidates well on their way to subsequent electoral victory; our knowledge of who wins and who loses municipal elections thus clearly depends on understanding the factors that produce incumbency advantage in Canadian cities.

Incumbency advantage declined in the four case cities during periods of partisan elections and increased to current levels as local political parties decayed in the post-war period. This finding aligns well with recent work by Andrew C. Eggers and Arthur Spirling (2017) which found that incumbency advantage was lower when voters had stronger partisan preferences between leading candidates in their district. Whatever it is that voters like about incumbents, Eggers and Spirling argue, their preference for incumbents is weighed against other preferences such as partisanship. My findings support this argument in a context of an even more extreme form of variation: the very presence and absence of partisan contestation itself.

This negative relationship between partisanship and incumbency advantage might also help to explain why my estimate of incumbency advantage in contemporary Canadian cities (41%) is noticeably higher than American estimates from Trounstine (32%), Ferreira and Gyourko (32%), de Benedictis-Kessner (37%), and Warshaw (33%). "Non-partisan" elections in the United States are typically quite different from "non-partisan" elections in Canada; despite the absence of party labels from the ballot in American non-partisan elections, the party affiliation of leading candidates is often well known (Schaffner et al. 2001). In Canada, on the other hand, non-partisan elections are often *genuinely* non-partisan; recent data from the Canadian Municipal Election Study indicate that a significant number of voters are unable to identify the provincial or federal political party with which leading mayoral candidates are associated, and the remainder who *do* identify the candidate with a particular party are often quite divided in their responses. In Calgary's 2017 election, for instance, fewer than two-thirds of voters associated the leading challenger, Bill Smith, with the provincial Conservatives despite Smith's past position as President of that party. In the case of the incumbent (and winner) Naheed Nenshi, the confusion was even deeper: one quarter associated Nenshi with the provincial New Democratic Party, one quarter associated him with the provincial Liberal party, one quarter chose "Don't Know," and the remaining responses were scattered among the other options.[20] Canadian municipal elections, in other words, are often not only *de jure* but also *de facto* non-partisan. While individual voters' provincial and federal partisanship shapes their municipal voting behavior in Canada (Cutler and Matthews 2005; Moore, McGregor, and Stephenson 2017; Stephenson, McGregor, and Moore 2018), the relative absence of information about the party affiliation of mayoral and council candidates would be expected to produce higher incumbency advantage if, as we have seen, incumbency advantage and partisan elections are negatively related. This may account for the higher estimates that we see in Canada relative to similar elections in the United States.

What do these findings teach us about the underlying components of incumbency advantage in municipal elections, as surveyed in Table 1? I have suggested that partisan contestation appears to affect candidate decision-making by increasing the probability that narrow losers will run in subsequent elections, thereby reducing the "scare-off" component of incumbency advantage. This much we can say with some confidence. But it is also likely that partisan contestation—especially the presence of strong local labor parties, who insisted on shifting municipal electoral discourse in a less "managerial" direction (Oliver 2012)—had important effects on voter-level decision-making as well. By persuading voters that city politics was not merely a realm of technical decisions about potholes and property values but

one of genuinely ideological policy contestation (Bright 1998; Epp-Koop 2015), partisan candidates in the middle part of the twentieth century may also have weakened the role of the personal vote and incumbent-quality cues in municipal voting behavior. Clarifying these voter-level patterns will require more detailed mixed-methods investigation in future research.

In contrast to the striking temporal variation in incumbency advantage that we uncovered in the data, our conclusions about variation by electoral district type (at-large vs. wards.) and race type (mayoral vs. council) are necessarily more cautious. Most of the components of incumbency advantage listed in Table 1—particularly the increased difficulty in cultivating a personal vote and scaring off opponents in at-large races when compared to ward races, and in council races when compared to mayoral races—would lead us to expect that incumbency advantage is lower in at-large and council races when compared to ward and mayoral races. While the differences that we found in our analysis were in keeping with these expectations, and were substantively quite large (a difference of 17 percentage points in the case of ward vs. at-large contests and 10 percentage points in the case of mayoral vs council races), the differences were, in general, statistically indiscernible from chance variation. These findings ultimately reflect the tradeoff involved in "deep" historical data collection in a select number of cities, as compared with "wide" data collection in a larger number of cities across a much shorter timespan; additional data, drawing upon a larger number of cities across both ward/at-large and mayoral/council races, will help to clarify how, and how much, institutional and contextual differences affect municipal incumbency advantage.

Taken more generally, the findings that I have reported in this article support a broader argument among recent scholars of urban elections and politics that municipal elections are not fundamentally different from elections at the regional or federal scales. A long tradition of urban politics research has suggested that local electoral politics is different in kind from provincial/state or federal elections, shaped by identities and cleavages—home ownership, inter-municipal competition, managerial competence—that differ profoundly from the ideological and partisan divisions that shape national politics (Oliver 2012; Peterson 1981). More recent work has suggested, in contrast, that ideological and partisan cleavages are deeply important for municipal electoral and policy outcomes (Einstein and Kogan 2016; Hajnal and Trounstine 2014; Tausanovitch and Warshaw 2014; Warshaw 2019). My findings fit with these recent arguments by revealing that incumbency advantage is not an inevitable feature of municipal elections; it has instead varied substantially over time within the same cities and the same basic municipal institutions. I thus assume, together with other recent literature, that standalone theories of

urban electoral politics are less useful than approaches that combine the wider literature with rich urban data, thereby seeking to explain when, how, and why local elections look different from elections at other scales.

Despite decades of research and considerable advances in our understanding of the causes and components of incumbency advantage, much work remains to be done to understand the relative importance of each component and the ways that these components vary across institutional environments and time. Even in the United States, where work on incumbency advantage has advanced the farthest, debates on all of these issues continue (Fowler 2018). Outside the United States, similar debates are in their infancy. This article has estimated incumbency advantage in Canadian municipalities for the first time, using a new dataset and a new approach to pooling and comparing at-large and ward elections. In addition to their implications for our specific understanding of city elections, I hope to have shown that the frequency and institutional variation of municipal elections in Canada and elsewhere provide new opportunities to explore incumbency advantage in ways that are not often possible with provincial/state or federal elections data (Warshaw 2019). We have long understood that municipal elections, especially in big cities, are an electoral environment in which "incumbents are king" (Moore, McGregor, and Stephenson 2017, p. 88). Comparative research across time, cities, and levels of government will help us understand how they reached— and maintain—that enviable position.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. Trounstine: 32%; Ferreira and Gyourko: 32%; de Benedictis-Kessner: 37%; Warshaw: 33%. Studies of municipal incumbency advantage outside the United States are also growing, particularly in Brazil, where a vigorous debate continues about incumbency *disadvantage* in Brazilian mayoral elections; see Brambor and Ceneviva (2011), De Magalhaes (2015), and Klašnja and Titiunik (2017).
2. All of the mayoral elections in this dataset are "weak mayor" elections, in the sense that the mayors sit as members of council and exercise limited executive responsibilities.
3. For instance, we may be less normatively concerned to discover that incumbency advantage is driven by the personal vote—a close connection between representative and incumbents—than if we discover that it is a result of challenger scare-off. The first step in this process, however, is to assess the size of incumbency advantage in general; this is our primary purpose in the present article. For evidence on incumbency and financial resources in a Canadian city, see Taylor and McEleney (2019).
4. Calgary 1896 to 2017, Edmonton 1904 to 2017, Vancouver 1886 to 2018, and Winnipeg 1874 to 2018.
5. Party affiliation is listed on the ballot in Vancouver after 1974, and those ballot samples are available in City of Vancouver Archives Series S37—Record of Elections, City of Vancouver Fonds. This is the only case in which official records of party affiliation are available.
6. See SM 1 for additional detail on the construction and content of the dataset, including the procedure I used to identify the party affiliation of each candidate.
7. See SM2 for more detail.
8. See Hirano and Snyder (2009) and, for an example outside the United States, Salas (2016).
9. It is not clear how this issue is addressed in Trounstine (2011). In other analyses of multi-member races it is avoided by construction (Cox and Morgenstern 1995; Hirano and Snyder 2009) or institutional design (Salas 2016). Cox and Morgenstern (1995) grapple with this issue but in a manner that is not transferrable to cases involving multiple parties and/or candidates.
10. This figure was constructed by the author from provincial government sources and manual inspection of municipal websites.
11. Because the outcome variable depends on knowledge of what happens in the next election, the most recent election in each city is excluded from the analysis. The analysis begins in 1904 because that is the first year that all four cities are present in the dataset.
12. For Calgary, the modern era is 1977 to present, the period in which the city has had a 14-member single-member ward system; for Edmonton, it is 1970 to present, the period in which the city had a two-member multi-member ward

system (1970–2009) and then a single-member ward system (2010–present); for Vancouver, it is 1966 to present, the period in which the city has had a ten-member council with all councilors elected at-large on the same date; for Winnipeg, it is 1971 to present, the period in which the city has had a single-member ward system with gradually decreasing total number of councilors. For additional detail and a complete timeline (including a more detailed explanation of my decision about how to define the modern era in Edmonton), see SM10.

13. I have used CCT optimal bin widths of about 0.2% in this plot.
14. For full tables, including the effective number of observations for each estimate, see SM 5.
15. The relatively small number of close mayoral elections in the modern era prevents us from comparing mayoral to council races in the more recent period.
16. SM7 demonstrates that the same basic time-trend is visible using alternative time windows and weighting schemes.
17. See SM1 for detail on how each party in each city was coded.
18. These expected values are drawn from a variance-weighted least squares regression with city fixed effects; results without variance weighting and/or city fixed effects are nearly identical. See SM9 for the complete tables.
19. Additional research is needed to provide a directly comparable estimate to those supplied here, but past work by Kendall and Rekkas (2012) has found a conditional incumbency advantage of about 10% at the federal level in Canada.
20. These data are taken from the Canadian Municipal Election Study, an ongoing research project whose Principal Investigator is R. Michael McGregor. The data are available from the author on request. See https://www.cmes-eemc.ca/.

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